1. (Previously Presented) A method for preparing a steroidal carbothiolic acid or a salt thereof, said method comprises:

A) reacting a steroidal carboxylic acid or a salt thereof with a coupling agent selected from the group consisting of carbodiimide derivatives represented by the following formula:

$R_a$—N=C=N—$R_b$

wherein $R_a$ and $R_b$ are the same or different, and each represent an aliphatic, heteroaliphatic, carbocyclic or a heterocyclic group, wherein the group is optionally substituted;

alone or in conjunction with a coupling enhancer; and

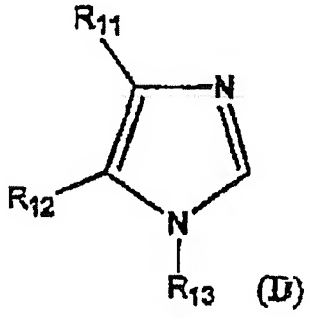
B) reacting the product of step A) with a nucleophilic agent comprising a sulfur atom.

2. (Original) A method according to claim 1 in which the coupling agent is 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide (EDC).

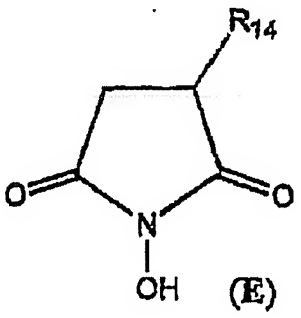
3. (Original) A method according to claim 2, in which the coupling agent is the hydrochloride salt of EDC.

4. (Previously Presented) A method according to claim 1, in which the coupling enhancer is selected from the group consisting of:

A) a heterocyclic ring of formula (D) or formula (E),



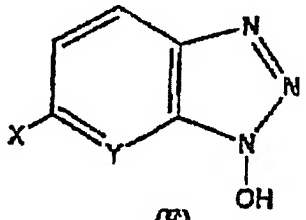
(D)



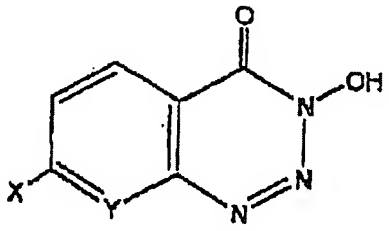
(E)

wherein $R_{11}$ and $R_{12}$ can be the same or different, and each represent a hydrogen atom or a cyano group; $R_{13}$ represent a hydrogen atom or an alkyl group; and $R_{14}$ represent a hydrogen atom or a salt of a sulfonic acid; and

B) an unsaturated 5-6 membered heterocyclic ring of formula (F) or formula (G),




(F)




(G)

X = H, F, Cl, Br and Y = CH, N, O, S

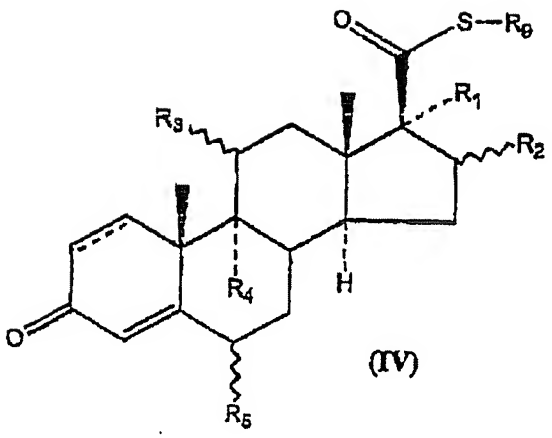
5. (Previously Presented) A method according to claim 1, where the nucleophilic agent comprising a sulfur atom is selected from the group consisting of:

compounds of formula $[M]^+[SH]^-$ wherein M is a metal such as Li, Na or K; or $[M]^{2+}[S]^{2-}$ wherein M is a metal such as Ca or Mg, the said sulfide salts being optionally hydrated; and

an *in situ* generated sulfide salt or a hydrated sulfide salt.

6. (Previously Presented) The method of claim 1, wherein the nucleophilic agent is dissolved in a suitable solvent prior to addition to the reaction mixture, or wherein the nucleophilic agent is added in the form of a solid salt or as a solution of the salt in water, an organic solvent, or a combination thereof.

7. (Previously Presented) A method according to claim 1 for preparing a steroidal carbothioic acid of formula (IV) or a salt thereof

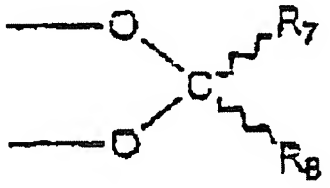



(IV)

wherein the symbol ═══ in the 1,2-position represent a single or a carbon-carbon double bond;

$R_1$ represents a hydrogen atom, a hydroxy- or an alkoxy group in the *a*-configuration, a group -O-C(=O)-$R_6$ is an alkyl group or an optionally substituted 5-6 membered heterocyclic ring containing either oxygen, nitrogen or sulfur as ring hetero atom;

$R_2$ represents a hydrogen atom, a hydroxy group, an alkoxy group in the *n*-configuration, an alkyl group which may be in either the η- or β-configuration, an alkylene group, wherein the alkylene group is bound to the steroid nucleus via a double bond, or $R_1$ and $R_2$ together represent




where $R_7$ and $R_8$ are the same or different and each represent a hydrogen atom or an alkyl group;

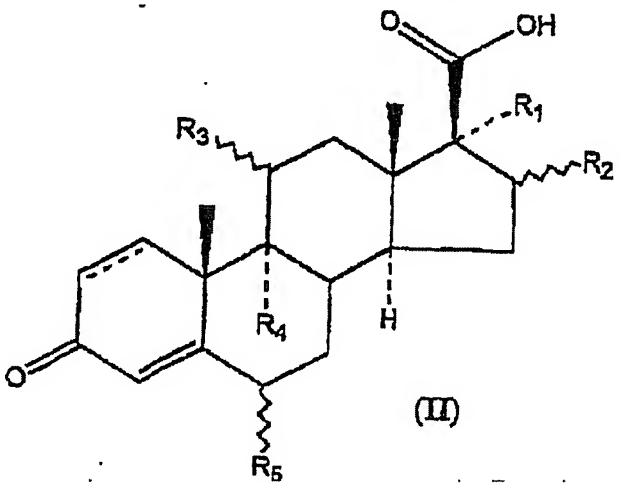
$R_3$ represent a hydrogen atom, hydroxy-or a protected hydroxy group in either a *α- or β-* configuration or an oxo group;

$R_4$ represents a hydrogen- or a halogen atom or $R_3$ and $R_4$ together represent a carbon-carbon bond or an epoxy group in the β-configuration; and

$R_5$ represents a hydrogen- or a halogen atom in either the α- or β-configuration;

$R_9$ represents a hydrogen atom or $R_9$ represent a metal ion; the method comprising;

A) reacting a steroidal carboxylic acid of formula (II) or a salt thereof




(II)

in which the substituents of formula (II) have the above defined meaning with a coupling agent alone or in conjunction with an coupling enhancer, followed by the reaction with a nucleophilic agent comprising a sulfur atom; and optionally

B) reacting the product from step A) with an acid.

8. (Previously Presented) The method of claim 1, wherein i)

the coupling agent is added before the coupling enhancer, or

the coupling enhancer is added before the coupling agent, and/or wherein ii)

the steroidal carboxylic acid is added to a mixture of the coupling agent and the coupling enhancer, or wherein

a mixture of the coupling agent and the coupling enhancer is added to a steroidal carboxylic acid, or wherein

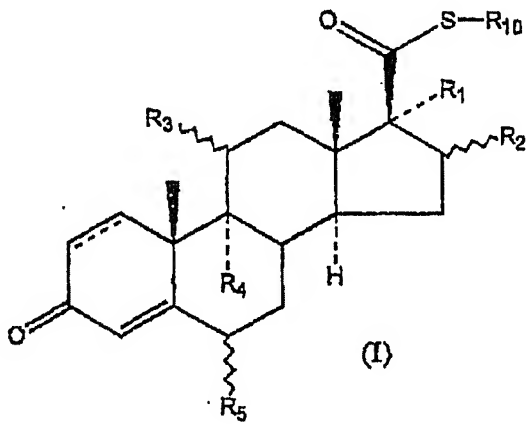
the steroidal carboxylic acid is added to a mixture of the coupling agent and the coupling enhancer in a polar aprotic solvent, preferably DMF or DMA, at elevated temperature.

9. (Currently Amended) The ~~A~~ method of claim 1, further comprising~~for preparing a steroidal carbothioate, or a salt thereof, the method comprising,~~;

reacting thea steroidal carbothioic acid or a salt thereof with an electrophilicelectrophillic agent to produce a steroidal carbothioate, or a salt thereoff.

10. (Currently Amended) A method according to claim 9, in which the electrophilicelectrophillic agent is selected from the group consisting of: $C_{1-8}$ di- or trihaloalkanes.

11. (Previously Presented) A method according to claim 9 for preparing a steroidal carbothioate of formula (I)

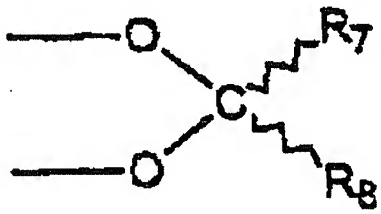



(I)

wherein $R_1$, $R_2$, $R_3$, $R_4$ and $R_5$ are;

$R_1$ represents a hydrogen atom, a hydroxy- or an alkoxy group in the *a*-configuration, a group -O-C(=O)-$R_6$ is an alkyl group or an optionally substituted 5-6 membered heterocyclic ring containing either oxygen, nitrogen or sulfur as ring hetero atom;

$R_2$ represents a hydrogen atom, a hydroxy group, an alkoxy group in the *n*-configuration, an alkyl group which may be in either the η- or β-configuration, an alkylene group, wherein the alkylene group is bound to the steroid nucleus via a double bond, or $R_1$ and $R_2$ together represent



where $R_7$ and $R_8$ are the same or different and each represent a hydrogen atom or an alkyl group;

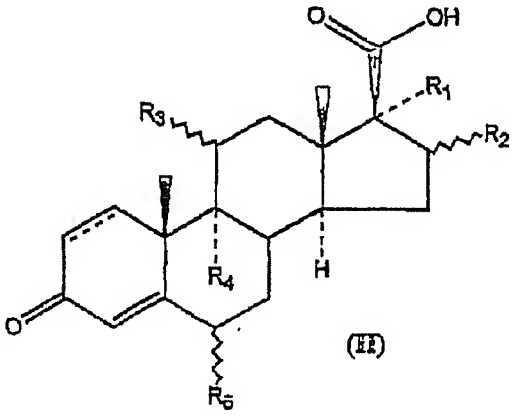
$R_3$ represent a hydrogen atom, hydroxy-or a protected hydroxy group in either a *α- or β-* configuration or an oxo group;

$R_4$ represents a hydrogen- or a halogen atom or $R_3$ and $R_4$ together represent a carbon-carbon bond or an epoxy group in the β-configuration; and

$R_5$ represents a hydrogen- or a halogen atom in either the α- or β-configuration

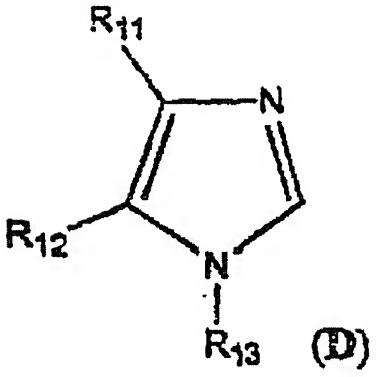
and $R_{10}$ represents a $C_{1\ 5}$ haloalkyl or an optionally substituted heterocyclic ring, the method comprising:

A) reacting a steroidal carboxylic acid of formula (II)

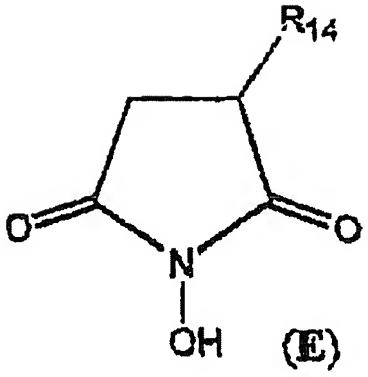



(II)

with a coupling agent and a coupling enhancer of formula (D) or formula(E)]




(D)




(E)

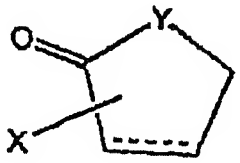
wherein $R_{11}$ and $R_{12}$ independently represent a hydrogen atom or a cyano group (C=N);

$R_{12}$ represent a hydrogen atom or an alkyl group; and

$R_{14}$ represent a hydrogen atom or a moiety of a sulfonic acid

B) reacting the product from step A) with a nucleophilic agent comprising sulfur; and

C) reacting the product from step B) with an electrophillic agent or a compound of the following formula;




wherein X=H, F, Cl, or Br and; Y=$CH_2$, NH, O, or S.

12. (Original) The method of claim 11, wherein the coupling enhancer is selected from the group consisting of: NMI (N-methylimidazole); DCI (4,5-dicyanolmidazole); NHS (N-hydroxysuccinimide); and sulfo-NHS (N-hydroxysulfosuccinimide).

13. (Previously Presented) The method of claim 11, wherein step C) constitutes the *in situ* reaction of the product from step B) with bromofluoromethane to form a compound of formula (I) wherein $R_{10}$ is a fluoromethyl group.

14. (Previously Presented) The method according to claim 9, in which

at least two subsequent steps are performed *in situ*;

the method is conducted as a continuous method;

step A), B) and optionally step C) are conducted as a one-pot synthesis without solvent changes. are performed at room or elevated temperature, or both; or

a combination of one or more of the foregoing.

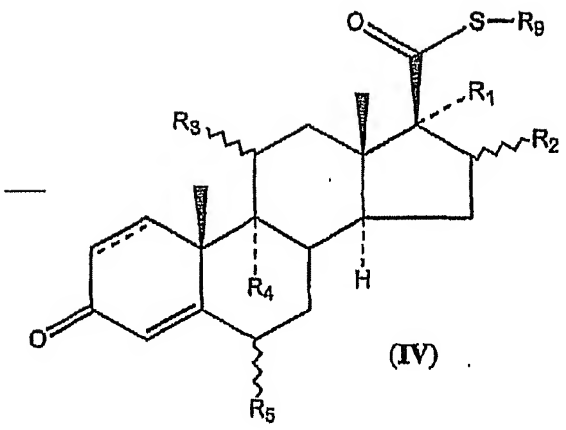
15. (Previously Presented) The method of claim 9, wherein an androstane 17β-carboxylic acid is converted to an androstane 17β-carbothioate.

16. (Previously Presented) The method of claim 9, wherein step B) provides a compound of formula (IV), in which the moiety –5-$R_5$ represent a group of the formula $[-S]^-[M]^+$ wherein M is a metal such as Li, Na or K,

wherein the symbol ═ in the 1,2-position represent a single or a carbon-carbon double bond;

$R_1$ represents a hydrogen atom, a hydroxy- or an alkoxy group in the *a*-configuration, a group -O-C(=O)-$R_6$ is an alkyl group or an optionally substituted 5-6 membered heterocyclic ring containing either oxygen, nitrogen or sulfur as ring hetero atom;

$R_2$ represents a hydrogen atom, a hydroxy group, an alkoxy group in the *n*-configuration, an alkyl group which may be in either the η- or β-configuration, an alkylene group, wherein the alkylene group is bound to the steroid nucleus via a double bond, or $R_1$ and $R_2$ together represent




(IV)

where $R_7$ and $R_8$ are the same or different and each represent a hydrogen atom or an alkyl group;

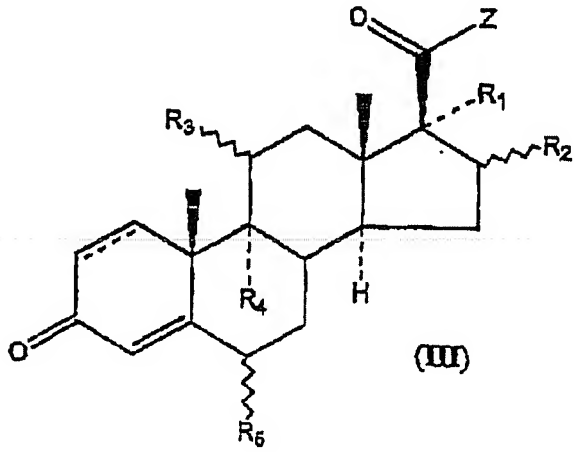
$R_3$ represent a hydrogen atom, hydroxy-or a protected hydroxy group in either a *α- or β-* configuration or an oxo group;

$R_4$ represents a hydrogen- or a halogen atom or $R_3$ and $R_4$ together represent a carbon-carbon bond or an epoxy group in the β-configuration; and

$R_5$ represents a hydrogen- or a halogen atom in either the α- or β-configuration;

$R_9$ represents a hydrogen atom or $R_9$ represent a metal ion.

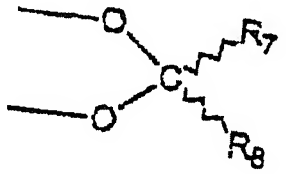
17. (Previously Presented) A compound of the formula (III) and salts and solvates thereof




(III)

wherein $R_1$ represents a hydrogen atom, a hydroxy- or an alkoxy group in the *a-* configuration, a group -O-C(=O)-$R_6$ is an alkyl group or an optionally substituted 5-6 membered heterocyclic ring containing either oxygen, nitrogen or sulfur as ring hetero atom;

$R_2$ represents a hydrogen atom, a hydroxy group, an alkoxy group in the *n*-configuration, an alkyl group which may be in either the η- or β-configuration, an alkylene group, wherein the alkylene group is bound to the steroid nucleus via a double bond, or $R_1$ and $R_2$ together represent



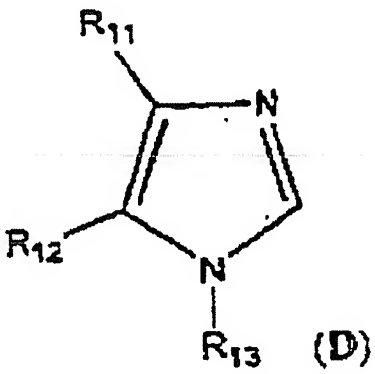

where $R_7$ and $R_8$ are the same or different and each represent a hydrogen tom or an alkyl group;

$R_3$ represent a hydrogen atom, hydroxy-or a protected hydroxy group in either a *α- or β-* configuration or an oxo group;

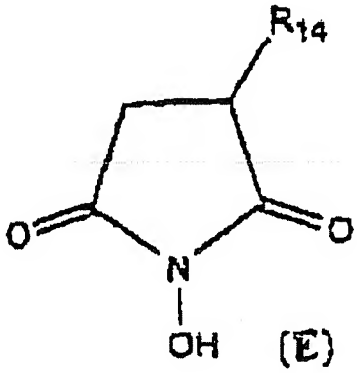
$R_4$ represents a hydrogen- or a halogen atom or $R_3$ and $R_4$ together represent a carbon-carbon bond or an epoxy group in the β-configuration; and

$R_5$ represents a hydrogen- or a halogen atom in either the α- or β-configuration; and

Z represent the structural moiety resulting from the reaction between the steroidal carboxylic acid of formula (II) and a coupling agent, followed by a coupling enhancer selected from the group consisting of the compounds of formulas (D); (E); (F); and (G):

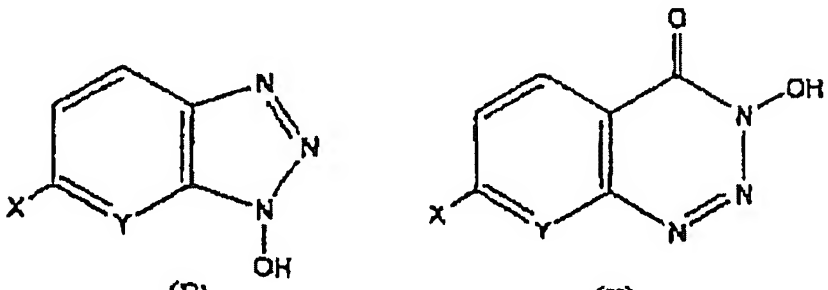



(D)




(E)

wherein $R_{11}$ and $R_{12}$ independently represent a hydrogen atom or a cyano group; $R_{13}$ represent a hydrogen atom or a methyl group; and $R_{14}$ represent a hydrogen atom or a moiety of a sulfonic acid,



(F) (G)

X - H, F, Cl, Br and Y -- CH, N, O, S

with the proviso that:

when the coupling enhancer is a compound of formula (F), X can not represent H when Y represents CH:

when the coupling enhancer is a compound of formula (D), $R_{11}$ and $R_{12}$ can not both represent H when $R_1$ in formula III represents DH; and

when the coupling enhancer is a compound of formula (E), $R_{14}$ can not represent H when $R_1$ in formula III represents H;

and with the further proviso that

succinlmidyl-9υ-fluoro-11β, 17α-dihydroxy-16α-methyl-3-oxoandrosta-1,4-diene-17β-carboxylate;

17α-hydroxy-4-androsten-3-one-17β-carboxylic acid N-hydroxysuccinimide ester;

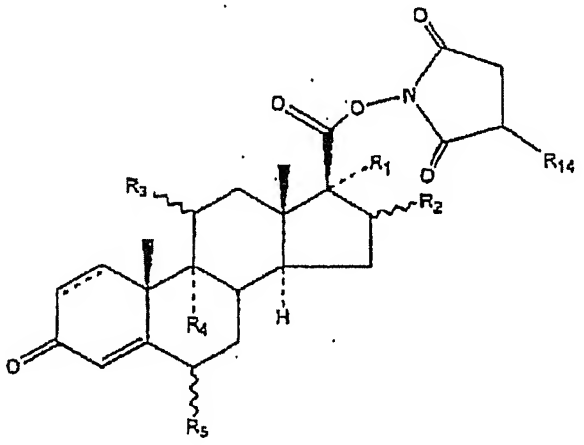
N-hydroxysuccinimidyl-9-fluoro-16α-methyl-11β, 17-dihydroxy-3-oxo-1,4-androstadiene-17β-carboxyester;

N-hydroxysuccinimide ester of dexamethasone-17β-carboxylic acid; and 1-[(9-fluoro-11β-hydroxy-16β-methyl-3-oxo-17α-propionylaxyandrosta-1,4-dien-17β-yi)carbonyl]imidazol are disclaimed.

18. (Previously Presented) The compound of claim 17, wherein at least one of $R_{11}$ and $R_{12}$ is a cyano group (C=N), $R_{13}$ is a hydrogen atom, formula (D) is NMI (N-methylimidazole) or

DCI (4,5-dicyano-imidazole), formula (E) is NHS (N-hydroxysuccinimide) or sulfo-NHS (N-hydroxysulfosuccinimide), or a combination comprising one or more of the foregoing.

19. (Previously Presented) The compound of claim 17, having the formula:

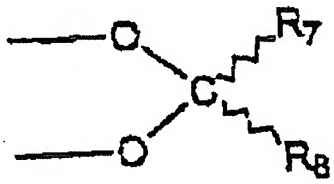



with the proviso that $R_{14}$ can not represent H when $R_1$ represents H.

20.(Previously Presented) A compound of the formula (VI) and salts and solvates thereof wherein

$R_1$ represents a hydrogen atom, a hydroxy- or an alkoxy group in the *a*-configuration, a group -O-C(=O)-$R_6$ is an alkyl group or an optionally substituted 5-6 membered heterocyclic ring containing either oxygen, nitrogen or sulfur as ring hetero atom;

$R_2$ represents a hydrogen atom, a hydroxy group, an alkoxy group in the *n*-configuration, an alkyl group which may be in either the η- or β-configuration, an alkylene group, wherein the alkylene group is bound to the steroid nucleus via a double bond, or $R_1$ and $R_2$ together represent




where $R_7$ and $R_8$ are the same or different and each represent a hydrogen tom or an alkyl group;

$R_3$ represent a hydrogen atom, hydroxy-or a protected hydroxy group in either a *α- or β-* configuration or an oxo group;

$R_4$ represents a hydrogen- or a halogen atom or $R_3$ and $R_4$ together represent a carbon-carbon bond or an epoxy group in the β-configuration; and

$R_5$ represents a hydrogen- or a halogen atom in either the α- or β-configuration,

wherein $R_a$ and $R_b$ are the same or different, and each represent an aliphatic, heteroaliphatic, carbocyclic or a heterocyclic group;

with the proviso that 1-(3-dimethylamino-propyl)-3-ethyl-carbodiimide-6α, 9υ-difluoro-11β-hydroxy-16α, 17α-isopropylidenedioxy-3-oxo-androsta-1,4-diene-17β-carboxylate is disclaimed.

21-23. (Cancelled).